



SEQUENCE LISTING

<110> Currie, Mark G.
Mahajan-Miklos, Shalina

<120> METHODS AND COMPOSITIONS FOR THE
TREATMENT OF GASTROINTESTINAL DISORDERS

<130> 14184-043001

<140> US 10/796,719

<141> 2004-03-09

<150> US 10/766,735

<151> 2004-01-28

<150> US 60/443,098

<151> 2003-01-28

<150> US 60/471,288

<151> 2003-05-15

<150> US 60/519,460

<151> 2003-11-12

<160> 149

<170> FastSEQ for Windows Version 4.0

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<213> Escherichia coli

<400> 1

Asn Ser Ser Asn Tyr Cys Cys Glu Leu Cys Cys Asn Pro Ala Cys Thr

1 5 10 15

Gly Cys Tyr

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<211> 18

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<213> Escherichia coli

<400> 2

Asn Thr Phe Tyr Cys Cys Glu Leu Cys Cys Asn Pro Ala Cys Ala Gly

1 5 10 15

Cys Tyr

<210> 3

<211> 18

<212> PRT

<213> *Escherichia coli*

<400> 3

Asn Thr Phe Tyr Cys Cys Glu Leu Cys Cys Tyr Pro Ala Cys Ala Gly
 1 5 10 15
 Cys Asn

<210> 4

<211> 18

<212> PRT

<213> *Citrobacter freundii*

<400> 4

Asn Thr Phe Tyr Cys Cys Glu Leu Cys Cys Asn Pro Ala Cys Ala Gly
 1 5 10 15
 Cys Tyr

<210> 5

<211> 30

<212> PRT

<213> *Yersinia enterocolitica*

<400> 5

Gln Ala Cys Asp Pro Pro Ser Pro Pro Ala Glu Val Ser Ser Asp Trp
 1 5 10 15
 Asp Cys Cys Asp Val Cys Cys Asn Pro Ala Cys Ala Gly Cys
 20 25 30

<210> 6

<211> 30

<212> PRT

<213> *Yersinia enterocolitica*

<400> 6

Lys Ala Cys Asp Thr Gln Thr Pro Ser Pro Ser Glu Glu Asn Asp Asp
 1 5 10 15
 Trp Cys Cys Glu Val Cys Cys Asn Pro Ala Cys Ala Gly Cys
 20 25 30

<210> 7

<211> 53

<212> PRT

<213> *Yersinia enterocolitica*

<400> 7

Gln Glu Thr Ala Ser Gly Gln Val Gly Asp Val Ser Ser Ser Thr Ile
 1 5 10 15
 Ala Thr Glu Val Ser Glu Ala Glu Cys Gly Thr Gln Ser Ala Thr Thr
 20 25 30
 Gln Gly Glu Asn Asp Trp Asp Trp Cys Cys Glu Leu Cys Cys Asn Pro
 35 40 45
 Ala Cys Phe Gly Cys
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 <213> *Yersinia kristensenii*

<400> 8
 Ser Asp Trp Cys Cys Glu Val Cys Cys Asn Pro Ala Cys Ala Gly Cys
 1 5 10 15

<210> 9
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 <213> *Vibrio cholerae*

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 Ile Asp Cys Cys Glu Ile Cys Cys Asn Pro Ala Cys Phe Gly Cys Leu
 1 5 10 15
 Asn

<210> 10
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 <213> *Vibrio mimicus*

<400> 10
 Ile Asp Cys Cys Glu Ile Cys Cys Asn Pro Ala Cys Phe Gly Cys Leu
 1 5 10 15
 Asn

<210> 11
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 <213> *Escherichia coli*

<400> 11
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 1 5 10 15
 Cys Tyr

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<400> 12
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 Ile Asp Cys Cys Glu Ile Cys Cys Asn Pro Ala Cys Phe Gly

1 5 10
 <210> 14
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 <213> *Vibrio mimicus*

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 Ile Asp Cys Cys Glu Ile Cys Cys Asn Pro Ala Cys Phe Gly Cys Leu
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 Asn

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 <213> *Vibrio mimicus*

 <400> 15
 Ile Asp Arg Cys Glu Ile Cys Cys Asn Pro Ala Cys Phe Gly Cys Leu
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 Asn

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 Asp Trp Asp Cys Cys Asp Val Cys Cys Asn Pro Ala Cys Ala Gly Cys
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 Asp Trp Asp Cys Cys Asp Val Cys Cys Asn Pro Ala Cys Ala Gly Cys
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 <210> 18
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 <213> *Yersinia enterocolitica*

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 Asn Asp Asp Trp Cys Cys Glu Val Cys Cys Asn Pro Ala Cys Ala Gly
 1 5 10 15
 Cys

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<400> 19

Trp Asp Trp Cys Cys Glu Leu Cys Cys Asn Pro Ala Cys Phe Gly Cys
 1 5 10 15

<210> 20

<211> 72

<212> PRT

<213> *Escherichia coli*

<400> 20

Met Lys Lys Leu Met Leu Ala Ile Phe Ile Ser Val Leu Ser Phe Pro
 1 5 10 15
 Ser Phe Ser Gln Ser Thr Glu Ser Leu Asp Ser Ser Lys Glu Lys Ile
 20 25 30
 Thr Leu Glu Thr Lys Lys Cys Asp Val Val Lys Asn Asn Ser Glu Lys
 35 40 45
 Lys Ser Glu Asn Met Asn Asn Thr Phe Tyr Cys Cys Glu Leu Cys Cys
 50 55 60
 Asn Pro Ala Cys Ala Gly Cys Tyr
 65 70

<210> 21

<211> 72

<212> PRT

<213> *Escherichia coli*

<400> 21

Met Lys Lys Ser Ile Leu Phe Ile Phe Leu Ser Val Leu Ser Phe Ser
 1 5 10 15
 Pro Phe Ala Gln Asp Ala Lys Pro Val Glu Ser Ser Lys Glu Lys Ile
 20 25 30
 Thr Leu Glu Ser Lys Lys Cys Asn Ile Ala Lys Lys Ser Asn Lys Ser
 35 40 45
 Gly Pro Glu Ser Met Asn Ser Ser Asn Tyr Cys Cys Glu Leu Cys Cys
 50 55 60
 Asn Pro Ala Cys Thr Gly Cys Tyr
 65 70

<210> 22

<211> 71

<212> PRT

<213> *Yersinia enterocolitica*

<400> 22

Met Lys Lys Ile Val Phe Val Leu Val Leu Met Leu Ser Ser Phe Gly
 1 5 10 15
 Ala Phe Gly Gln Glu Thr Val Ser Gly Gln Phe Ser Asp Ala Leu Ser
 20 25 30
 Thr Pro Ile Thr Ala Glu Val Tyr Lys Gln Ala Cys Asp Pro Pro Leu
 35 40 45
 Pro Pro Ala Glu Val Ser Ser Asp Trp Asp Cys Cys Asp Val Cys Cys
 50 55 60
 Asn Pro Ala Cys Ala Gly Cys
 65 70

<210> 23

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 sequence

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 Met Lys Lys Ser Ile Leu Phe Ile Phe Leu Ser Val Leu Ser Phe Ser
 1 5 10 15
 Pro Phe Ala Gln Asp Ala Lys Pro Val Glu Ser Ser Lys Glu Lys Ile
 20 25 30
 Thr Leu Glu Ser Lys Lys Cys Asn Ile Ala Lys Lys Ser Asn Lys Ser
 35 40 45
 Gly Pro Glu Ser Met Asn
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<210> 24
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 Met Lys Lys Ser Ile Leu Phe Ile Phe Leu Ser Val Leu Ser Phe Ser
 1 5 10 15
 Pro Phe Ala Gln Asp Ala Lys Pro Ala Gly Ser Ser Lys Glu Lys Ile
 20 25 30
 Thr Leu Glu Ser Lys Lys Cys Asn Ile Val Lys Lys Ser Asn Lys Ser
 35 40 45
 Gly Pro Glu Ser Met
 50

<210> 25
 <211> 53
 <212> PRT
 <213> Escherichia coli

<400> 25
 Met Lys Lys Ser Ile Leu Phe Ile Phe Leu Ser Val Leu Ser Phe Ser
 1 5 10 15
 Pro Phe Ala Gln Asp Ala Lys Pro Ala Gly Ser Ser Lys Glu Lys Ile
 20 25 30
 Thr Leu Glu Ser Lys Lys Cys Asn Ile Val Lys Lys Asn Asn Glu Ser
 35 40 45
 Ser Pro Glu Ser Met
 50

<210> 26
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<400> 26

Asn Ser Ser Asn Tyr Cys Cys Glu Leu Cys Cys Asn Pro Ala Cys Thr
 1 5 10 15
 Gly Cys Tyr

<210> 27

<211> 19

<212> PRT

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<400> 27

Asn Ser Ser Asn Tyr Cys Cys Glu Leu Cys Cys Asn Pro Ala Cys Trp
 1 5 10 15
 Gly Cys Tyr

<210> 28

<211> 19

<212> PRT

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<220>

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<400> 28

Asn Ser Ser Asn Tyr Cys Cys Glu Tyr Cys Cys Asn Pro Ala Cys Thr
 1 5 10 15
 Gly Cys Tyr

<210> 29

<211> 14

<212> PRT

<213> Artificial Sequence

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<400> 29

Cys Cys Glu Leu Cys Cys Asn Pro Ala Cys Thr Gly Cys Tyr
 1 5 10

<210> 30

<211> 14

<212> PRT

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<400> 30

Cys Cys Glu Leu Cys Cys Asn Pro Ala Cys Trp Gly Cys Tyr
 1 5 10

<210> 31

<211> 14

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<400> 31

Cys Cys Glu Tyr Cys Cys Asn Pro Ala Cys Thr Gly Cys Tyr
 1 5 10

<210> 32

<211> 15

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<400> 32

Asn Cys Cys Glu Leu Cys Cys Asn Pro Ala Cys Thr Gly Cys Tyr
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<210> 33

<211> 15

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<400> 33

Asn Cys Cys Glu Leu Cys Cys Asn Pro Ala Cys Trp Gly Cys Tyr
 1 5 10 15

<210> 34

<211> 15

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<400> 34

Asn Cys Cys Glu Phe Cys Cys Asn Pro Ala Cys Thr Gly Cys Tyr
 1 5 10 15

<210> 35

<211> 15

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<400> 35

Asn	Cys	Cys	Glu	Tyr	Cys	Cys	Asn	Pro	Ala	Cys	Thr	Gly	Cys	Tyr
1				5					10					15

<210> 36

<211> 15

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<213> Artificial Sequence

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<400> 36

Asn	Cys	Cys	Glu	Trp	Cys	Cys	Asn	Pro	Ala	Cys	Thr	Gly	Cys	Tyr
1				5					10					15

<210> 37

<211> 15

<212> PRT

<213> Artificial Sequence

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<400> 37

Asn	Cys	Cys	Glu	Arg	Cys	Cys	Asn	Pro	Ala	Cys	Thr	Gly	Cys	Tyr
1				5					10					15

<210> 38

<211> 15

<212> PRT

<213> Artificial Sequence

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<400> 38

Asn	Cys	Cys	Glu	Lys	Cys	Cys	Asn	Pro	Ala	Cys	Thr	Gly	Cys	Tyr
1				5					10					15

<210> 39

<211> 21

<212> PRT

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<400> 39

Asn	Ser	Ser	Asn	Tyr	Cys	Cys	Glu	Leu	Cys	Cys	Asn	Pro	Ala	Cys	Thr
1				5					10					15	
Gly	Cys	Tyr	Asp	Phe											
			20												

<210> 40

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<400> 40
 Asn Ser Ser Asn Tyr Cys Cys Glu Leu Cys Cys Asn Pro Ala Cys Trp
 1 5 10 15
 Gly Cys Tyr Asp Phe
 20

<210> 41
 <211> 21
 <212> PRT
 <213> Artificial Sequence

<220>
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<400> 41
 Asn Ser Ser Asn Tyr Cys Cys Glu Phe Cys Cys Asn Pro Ala Cys Thr
 1 5 10 15
 Gly Cys Tyr Asp Phe
 20

<210> 42
 <211> 21
 <212> PRT
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<400> 42
 Asn Ser Ser Asn Tyr Cys Cys Glu Tyr Cys Cys Asn Pro Ala Cys Thr
 1 5 10 15
 Gly Cys Tyr Asp Phe
 20

<210> 43
 <211> 21
 <212> PRT
 <213> Artificial Sequence

<220>
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<400> 43
 Asn Ser Ser Asn Tyr Cys Cys Glu Trp Cys Cys Asn Pro Ala Cys Thr
 1 5 10 15
 Gly Cys Tyr Asp Phe
 20

<210> 44
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<212> PRT

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<400> 44

Asn	Ser	Ser	Asn	Tyr	Cys	Cys	Glu	Arg	Cys	Cys	Asn	Pro	Ala	Cys	Thr
1				5					10					15	
Gly	Cys	Tyr	Asp	Phe											
			20												

<210> 45

<211> 21

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<213> Artificial Sequence

<220>

<223> Synthetically generated peptide

<400> 45

Asn	Ser	Ser	Asn	Tyr	Cys	Cys	Glu	Lys	Cys	Cys	Asn	Pro	Ala	Cys	Thr
1				5					10					15	
Gly	Cys	Tyr	Asp	Phe											
			20												

<210> 46

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<213> Artificial Sequence

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<400> 46

Cys	Cys	Glu	Leu	Cys	Cys	Asn	Pro	Ala	Cys	Thr	Gly	Cys	Tyr	Asp	Phe
1				5					10					15	

<210> 47

<211> 16

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<400> 47

Cys	Cys	Glu	Leu	Cys	Cys	Asn	Pro	Ala	Cys	Trp	Gly	Cys	Tyr	Asp	Phe
1				5					10					15	

<210> 48

<211> 16

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<220>

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<400> 48

Cys Cys Glu Phe Cys Cys Asn Pro Ala Cys Thr Gly Cys Tyr Asp Phe
 1 5 10 15

<210> 49

<211> 16

<212> PRT

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<220>

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<400> 49

Cys Cys Glu Tyr Cys Cys Asn Pro Ala Cys Thr Gly Cys Tyr Asp Phe
 1 5 10 15

<210> 50

<211> 16

<212> PRT

<213> Artificial Sequence

<220>

<223> Synthetically generated peptide

<400> 50

Cys Cys Glu Trp Cys Cys Asn Pro Ala Cys Thr Gly Cys Tyr Asp Phe
 1 5 10 15

<210> 51

<211> 16

<212> PRT

<213> Artificial Sequence

<220>

<223> Synthetically generated peptide

<400> 51

Cys Cys Glu Arg Cys Cys Asn Pro Ala Cys Thr Gly Cys Tyr Asp Phe
 1 5 10 15

<210> 52

<211> 16

<212> PRT

<213> Artificial Sequence

<220>

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<400> 52

Cys Cys Glu Lys Cys Cys Asn Pro Ala Cys Thr Gly Cys Tyr Asp Phe
 1 5 10 15

<210> 53

<211> 17

<212> PRT

<213> Artificial Sequence

<220>

<223> Synthetically generated peptide

<400> 53

Asn Cys Cys Glu Leu Cys Cys Asn Pro Ala Cys Thr Gly Cys Tyr Asp

1 5 10 15

Phe

<210> 54

<211> 17

<212> PRT

<213> Artificial Sequence

<220>

<223> Synthetically generated peptide

<400> 54

Asn Cys Cys Glu Leu Cys Cys Asn Pro Ala Cys Trp Gly Cys Tyr Asp

1 5 10 15

Phe

<210> 55

<211> 17

<212> PRT

<213> Artificial Sequence

<220>

<223> Synthetically generated peptide

<400> 55

Asn Cys Cys Glu Phe Cys Cys Asn Pro Ala Cys Thr Gly Cys Tyr Asp

1 5 10 15

Phe

<210> 56

<211> 17

<212> PRT

<213> Artificial Sequence

<220>

<223> Synthetically generated peptide

<400> 56

Asn Cys Cys Glu Tyr Cys Cys Asn Pro Ala Cys Thr Gly Cys Tyr Asp

1 5 10 15

Phe

<210> 57

<211> 17

<212> PRT

<213> Artificial Sequence

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<223> Synthetically generated peptide

<400> 57

Asn	Cys	Cys	Glu	Trp	Cys	Cys	Asn	Pro	Ala	Cys	Thr	Gly	Cys	Tyr	Asp
1				5					10					15	

Phe

<210> 58

<211> 17

<212> PRT

<213> Artificial Sequence

<220>

<223> Synthetically generated peptide

<400> 58

Asn	Cys	Cys	Glu	Arg	Cys	Cys	Asn	Pro	Ala	Cys	Thr	Gly	Cys	Tyr	Asp
1				5					10					15	

Phe

<210> 59

<211> 17

<212> PRT

<213> Artificial Sequence

<220>

<223> Synthetically generated peptide

<400> 59

Asn	Cys	Cys	Glu	Lys	Cys	Cys	Asn	Pro	Ala	Cys	Thr	Gly	Cys	Tyr	Asp
1				5					10					15	

Phe

<210> 60

<211> 42

<212> DNA

<213> Artificial Sequence

<220>

<223> Synthetically generated oligonucleotide

<400> 60

cacaccatat gaagaaatca atattattta tttttctttc tg

42

<210> 61

<211> 46

<212> DNA

<213> Artificial Sequence

<220>

<223> Synthetically generated oligonucleotide

<400> 61

cacacctcga gttaggtctc catgctttca ggaccacttt tattac 46

<210> 62

<211> 69

<212> DNA

<213> Artificial Sequence

<220>

<223> Synthetically generated oligonucleotide

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gcatgaatag tagcaattac tgctgtgaat tgtgttgtaa tcctgcttgt accgggtgct 60
attaataac 69

<210> 63

<211> 69

<212> DNA

<213> Artificial Sequence

<220>

<223> Synthetically generated oligonucleotide

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tcgagttatt aatagcaccc ggtacaagca ggattacaac acaattcaca gcagtaattg 60
ctactattc 69

<210> 64

<211> 69

<212> DNA

<213> Artificial Sequence

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<223> Synthetically generated oligonucleotide

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gcatgaatag tagcaattac tgctgtgaat attgttgtaa tcctgcttgt accgggtgct 60
attaataac 69

<210> 65

<211> 69

<212> DNA

<213> Artificial Sequence

<220>

<223> Synthetically generated oligonucleotide

<400> 65

tcgagttatt aatagcaccc ggtacaagca ggattacaac aatattcaca gcagtaattg 60
ctactattc 69

<210> 66

<211> 21

<212> PRT

<213> Artificial Sequence

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<223> Synthetically generated peptide

<220>

<221>VARIANT

<222> 9

<223> Xaa = any amino acid; or Xaa = any amino acid other than Leu; or Xaa = Phe, Trp, and Tyr; or selected from from any other natural or non-natural aromatic amino acid; or Xaa = Tyr

<220>

<221>VARIANT

$\langle 222 \rangle$ 1, 2, 3, 4, 5

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<223> Xaa1 = Asn, Xaa2 = Ser, Xaa3 = Ser, Xaa4 = Asn,
      Xaa5 = Tyr; or Xaa1-Xaa5 is missing; or Xaa1-Xaa4
      is missing; or Xaa1 -Xaa3 is missing; or Xaa1 and
      Xaa2 is missing; or Xaa1 is missing
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<220>

<221>VARIANT

<222> 19, 20, 21

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<223> Xaa 20 = Asp, Xaa21 = Phe or missing; or Xaa20 =
      Asn or Glu and Xaa21 is missing; or X19-Xaa21 is
      missing
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<400> 66

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Xaa Xaa Xaa Xaa Xaa Cys Cys Glu Xaa Cys Cys Asn Pro Ala Cys Thr
 1           5           10           15
Gly Cys Tyr Xaa Xaa
          20

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<210> 67

<211> 19

<212> PRT

<213> Artificial Sequence

$\langle 220 \rangle$

<223> Synthetically generated peptide

<400> 67

Gln Ser Ser Asn Tyr Cys Cys Glu Tyr Cys Cys Asn Pro Ala Cys Thr
1 5 10 15
Gly Cys Tyr

<210> 68

<211> 19

<212> PRT

<213> Artificial Sequence

<220>

<223> Synthetically generated peptide

<400> 68

Asn Thr Ser Asn Tyr Cys Cys Glu Tyr Cys Cys Asn Pro Ala Cys Thr
1 5 10 15
Gly Cys Tyr

<210> 69
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<400> 69
 Asn Leu Ser Asn Tyr Cys Cys Glu Tyr Cys Cys Asn Pro Ala Cys Thr
 1 5 10 15
 Gly Cys Tyr

<210> 70
 <211> 19
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 <213> Artificial Sequence

<220>
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<400> 70
 Asn Ile Ser Asn Tyr Cys Cys Glu Tyr Cys Cys Asn Pro Ala Cys Thr
 1 5 10 15
 Gly Cys Tyr

<210> 71
 <211> 19
 <212> PRT
 <213> Artificial Sequence

<220>
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<400> 71
 Asn Ser Ser Gln Tyr Cys Cys Glu Tyr Cys Cys Asn Pro Ala Cys Thr
 1 5 10 15
 Gly Cys Tyr

<210> 72
 <211> 18
 <212> PRT
 <213> Artificial Sequence

<220>
 <223> Synthetically generated peptide

<400> 72
 Ser Ser Asn Tyr Cys Cys Glu Tyr Cys Cys Asn Pro Ala Cys Thr Gly
 1 5 10 15
 Cys Tyr

<210> 73
 <211> 19
 <212> PRT
 <213> Artificial Sequence

<220>
 <223> Synthetically generated peptide

<400> 73
 Gln Ser Ser Gln Tyr Cys Cys Glu Tyr Cys Cys Asn Pro Ala Cys Thr
 1 5 10 15
 Gly Cys Tyr

<210> 74
 <211> 18
 <212> PRT
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<220>
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<400> 74
 Ser Ser Gln Tyr Cys Cys Glu Tyr Cys Cys Asn Pro Ala Cys Thr Gly
 1 5 10 15
 Cys Tyr

<210> 75
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<220>
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<400> 75
 Asn Ser Ser Asn Tyr Cys Cys Glu Ala Cys Cys Asn Pro Ala Cys Thr
 1 5 10 15
 Gly Cys Tyr

<210> 76
 <211> 19
 <212> PRT
 <213> Artificial Sequence

<220>
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<400> 76
 Asn Ser Ser Asn Tyr Cys Cys Glu Arg Cys Cys Asn Pro Ala Cys Thr
 1 5 10 15
 Gly Cys Tyr

<210> 77

<211> 19
 <212> PRT
 <213> Artificial Sequence

<220>
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<400> 77
 Asn Ser Ser Asn Tyr Cys Cys Glu Asn Cys Cys Asn Pro Ala Cys Thr
 1 5 10 15
 Gly Cys Tyr

<210> 78
 <211> 19
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<400> 78
 Asn Ser Ser Asn Tyr Cys Cys Glu Asp Cys Cys Asn Pro Ala Cys Thr
 1 5 10 15
 Gly Cys Tyr

<210> 79
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<400> 79
 Asn Ser Ser Asn Tyr Cys Cys Glu Cys Cys Cys Asn Pro Ala Cys Thr
 1 5 10 15
 Gly Cys Tyr

<210> 80
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<400> 80
 Asn Ser Ser Asn Tyr Cys Cys Glu Gln Cys Cys Asn Pro Ala Cys Thr
 1 5 10 15
 Gly Cys Tyr

<210> 81
 <211> 19

<212> PRT
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<400> 81
 Asn Ser Ser Asn Tyr Cys Cys Glu Glu Cys Cys Asn Pro Ala Cys Thr
 1 5 10 15
 Gly Cys Tyr

<210> 82
 <211> 19
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<400> 82
 Asn Ser Ser Asn Tyr Cys Cys Glu Gly Cys Cys Asn Pro Ala Cys Thr
 1 5 10 15
 Gly Cys Tyr

<210> 83
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<400> 83
 Asn Ser Ser Asn Tyr Cys Cys Glu His Cys Cys Asn Pro Ala Cys Thr
 1 5 10 15
 Gly Cys Tyr

<210> 84
 <211> 19
 <212> PRT
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<220>
 <223> Synthetically generated peptide

<400> 84
 Asn Ser Ser Asn Tyr Cys Cys Glu Ile Cys Cys Asn Pro Ala Cys Thr
 1 5 10 15
 Gly Cys Tyr

<210> 85
 <211> 19
 <212> PRT

<213> Artificial Sequence

<220>

<223> Synthetically generated peptide

<400> 85

Asn	Ser	Ser	Asn	Tyr	Cys	Cys	Glu	Lys	Cys	Cys	Asn	Pro	Ala	Cys	Thr
1				5					10					15	
Gly Cys Tyr															

<210> 86

<211> 19

<212> PRT

<213> Artificial Sequence

<220>

<223> Synthetically generated peptide

<400> 86

Asn	Ser	Ser	Asn	Tyr	Cys	Cys	Glu	Met	Cys	Cys	Asn	Pro	Ala	Cys	Thr
1				5					10					15	
Gly Cys Tyr															

<210> 87

<211> 19

<212> PRT

<213> Artificial Sequence

<220>

<223> Synthetically generated peptide

<400> 87

Asn	Ser	Ser	Asn	Tyr	Cys	Cys	Glu	Phe	Cys	Cys	Asn	Pro	Ala	Cys	Thr
1				5					10					15	
Gly Cys Tyr															

<210> 88

<211> 19

<212> PRT

<213> Artificial Sequence

<220>

<223> Synthetically generated peptide

<400> 88

Asn	Ser	Ser	Asn	Tyr	Cys	Cys	Glu	Pro	Cys	Cys	Asn	Pro	Ala	Cys	Thr
1				5					10					15	
Gly Cys Tyr															

<210> 89

<211> 19

<212> PRT

<213> Artificial Sequence

<220>

<223> Synthetically generated peptide

<400> 89

Asn	Ser	Ser	Asn	Tyr	Cys	Cys	Glu	Ser	Cys	Cys	Asn	Pro	Ala	Cys	Thr
1				5					10					15	
Gly Cys Tyr															

<210> 90

<211> 19

<212> PRT

<213> Artificial Sequence

<220>

<223> Synthetically generated peptide

<400> 90

Asn	Ser	Ser	Asn	Tyr	Cys	Cys	Glu	Thr	Cys	Cys	Asn	Pro	Ala	Cys	Thr
1				5					10					15	
Gly Cys Tyr															

<210> 91

<211> 19

<212> PRT

<213> Artificial Sequence

<220>

<223> Synthetically generated peptide

<400> 91

Asn	Ser	Ser	Asn	Tyr	Cys	Cys	Glu	Trp	Cys	Cys	Asn	Pro	Ala	Cys	Thr
1				5					10					15	
Gly Cys Tyr															

<210> 92

<211> 19

<212> PRT

<213> Artificial Sequence

<220>

<223> Synthetically generated peptide

<400> 92

Asn	Ser	Ser	Asn	Tyr	Cys	Cys	Glu	Val	Cys	Cys	Asn	Pro	Ala	Cys	Thr
1				5					10					15	
Gly Cys Tyr															

<210> 93

<211> 14

<212> PRT

<213> Artificial Sequence

<220>

<223> Synthetically generated peptide

<400> 93

Cys Cys Glu Ala Cys Cys Asn Pro Ala Cys Thr Gly Cys Tyr
1 5 10

<210> 94

<211> 14

<212> PRT

<213> Artificial Sequence

<220>

<223> Synthetically generated peptide

<400> 94

Cys Cys Glu Arg Cys Cys Asn Pro Ala Cys Thr Gly Cys Tyr
1 5 10

<210> 95

<211> 14

<212> PRT

<213> Artificial Sequence

<220>

<223> Synthetically generated peptide

<400> 95

Cys Cys Glu Asn Cys Cys Asn Pro Ala Cys Thr Gly Cys Tyr
1 5 10

<210> 96

<211> 14

<212> PRT

<213> Artificial Sequence

<220>

<223> Synthetically generated peptide

<400> 96

Cys Cys Glu Asp Cys Cys Asn Pro Ala Cys Thr Gly Cys Tyr
1 5 10

<210> 97

<211> 14

<212> PRT

<213> Artificial Sequence

<220>

<223> Synthetically generated peptide

<400> 97

Cys Cys Glu Cys Cys Cys Asn Pro Ala Cys Thr Gly Cys Tyr
1 5 10

<210> 98

<211> 14

<212> PRT
 <213> Artificial Sequence

<220>
 <223> Synthetically generated peptide

<400> 98
 Cys Cys Glu Gln Cys Cys Asn Pro Ala Cys Thr Gly Cys Tyr
 1 5 10

<210> 99
 <211> 14
 <212> PRT
 <213> Artificial Sequence

<220>
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<400> 99
 Cys Cys Glu Glu Cys Cys Asn Pro Ala Cys Thr Gly Cys Tyr
 1 5 10

<210> 100
 <211> 14
 <212> PRT
 <213> Artificial Sequence

<220>
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<400> 100
 Cys Cys Glu Gly Cys Cys Asn Pro Ala Cys Thr Gly Cys Tyr
 1 5 10

<210> 101
 <211> 14
 <212> PRT
 <213> Artificial Sequence

<220>
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<400> 101
 Cys Cys Glu His Cys Cys Asn Pro Ala Cys Thr Gly Cys Tyr
 1 5 10

<210> 102
 <211> 14
 <212> PRT
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<220>
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<400> 102
 Cys Cys Glu Ile Cys Cys Asn Pro Ala Cys Thr Gly Cys Tyr
 1 5 10

<210> 103
 <211> 14
 <212> PRT
 <213> Artificial Sequence

<220>
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<400> 103
 Cys Cys Glu Lys Cys Cys Asn Pro Ala Cys Thr Gly Cys Tyr
 1 5 10

<210> 104
 <211> 14
 <212> PRT
 <213> Artificial Sequence

<220>
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<400> 104
 Cys Cys Glu Met Cys Cys Asn Pro Ala Cys Thr Gly Cys Tyr
 1 5 10

<210> 105
 <211> 14
 <212> PRT
 <213> Artificial Sequence

<220>
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<400> 105
 Cys Cys Glu Phe Cys Cys Asn Pro Ala Cys Thr Gly Cys Tyr
 1 5 10

<210> 106
 <211> 14
 <212> PRT
 <213> Artificial Sequence

<220>
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<400> 106
 Cys Cys Glu Pro Cys Cys Asn Pro Ala Cys Thr Gly Cys Tyr
 1 5 10

<210> 107
 <211> 14
 <212> PRT
 <213> Artificial Sequence

<220>
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<400> 107

Cys Cys Glu Ser Cys Cys Asn Pro Ala Cys Thr Gly Cys Tyr
 1 5 10

<210> 108

<211> 14

<212> PRT

<213> Artificial Sequence

<220>

<223> Synthetically generated peptide

<400> 108

Cys Cys Glu Thr Cys Cys Asn Pro Ala Cys Thr Gly Cys Tyr
 1 5 10

<210> 109

<211> 14

<212> PRT

<213> Artificial Sequence

<220>

<223> Synthetically generated peptide

<400> 109

Cys Cys Glu Trp Cys Cys Asn Pro Ala Cys Thr Gly Cys Tyr
 1 5 10

<210> 110

<211> 14

<212> PRT

<213> Artificial Sequence

<220>

<223> Synthetically generated peptide

<400> 110

Cys Cys Glu Val Cys Cys Asn Pro Ala Cys Thr Gly Cys Tyr
 1 5 10

<210> 111

<211> 5

<212> PRT

<213> Artificial Sequence

<220>

<223> Synthetically generated peptide

<400> 111

Gln His Asn Pro Arg
 1 5

<210> 112

<211> 6

<212> PRT

<213> Artificial Sequence

<220>

<223> Synthetically generated peptide

<400> 112

Val Gln His Asn Pro Arg

1 5

<210> 113

<211> 7

<212> PRT

<213> Artificial Sequence

<220>

<223> Synthetically generated peptide

<400> 113

Val Arg Gln His Asn Pro Arg

1 5

<210> 114

<211> 8

<212> PRT

<213> Artificial Sequence

<220>

<223> Synthetically generated peptide

<400> 114

Val Arg Gly Gln His Asn Pro Arg

1 5

<210> 115

<211> 9

<212> PRT

<213> Artificial Sequence

<220>

<223> Synthetically generated peptide

<400> 115

Val Arg Gly Pro Gln His Asn Pro Arg

1 5

<210> 116

<211> 10

<212> PRT

<213> Artificial Sequence

<220>

<223> Synthetically generated peptide

<400> 116

Val Arg Gly Pro Arg Gln His Asn Pro Arg

1 5 10

<210> 117

<211> 11

<212> PRT
 <213> Artificial Sequence

<220>
 <223> Synthetically generated peptide

<400> 117
 Val Arg Gly Pro Arg Arg Gln His Asn Pro Arg
 1 5 10

<210> 118
 <211> 6
 <212> PRT
 <213> Artificial Sequence

<220>
 <223> Synthetically generated peptide

<400> 118
 Arg Gln His Asn Pro Arg
 1 5

<210> 119
 <211> 21
 <212> PRT
 <213> Artificial Sequence

<220>
 <223> Synthetically generated peptide

<220>
 <221>VARIANT
 <222> 1, 2, 3, 4
 <223> Xaa = is missing

<220>
 <221>VARIANT
 <222> 9
 <223> Xaa = Phe, Trp or Tyr

<220>
 <221>VARIANT
 <222> 8, 12, 13, 14, 16, 17, 19, 20, 21
 <223> Xaa = Ala, Arg, Asn, Asp, Cys, Gln, Glu, Gly, His, Ile, Leu,
 Lys, Met, Phe, Pro, Ser, Thr, Trp, Tyr or Val

<400> 119
 Xaa Xaa Xaa Xaa Xaa Cys Cys Xaa Xaa Cys Cys Xaa Xaa Xaa Cys Xaa
 1 5 10 15
 Xaa Cys Xaa Xaa Xaa
 20

<210> 120
 <211> 21
 <212> PRT
 <213> Artificial Sequence

<220>

<223> Synthetically generated peptide

<220>

<221>VARIANT

<222> 1, 2, 3, 4, 5

<223> Xaa1 = Asn, Xaa2 = Ser, Xaa3 = Ser, Xaa4 = Asn,
Xaa5 = Tyr or missing; or Xaa1- Xaa4 is missing
and Xaa5 = Asn

<220>

<221>VARIANT

<222> 8

<223> Xaa = Glu or Asp

<220>

<221>VARIANT

<222> 9

<223> Xaa = Leu, Ile, Val, Trp, Tyr or Phe

<220>

<221>VARIANT

<222> 16

<223> Xaa = Thr, Ala, or Trp

<220>

<221>VARIANT

<222> 19

<223> Xaa = Trp, Tyr, Or Leu or is missing

<220>

<221>VARIANT

<222> 20, 21

<223> Xaa = Asp, Phe

<400> 120

Xaa	Xaa	Xaa	Xaa	Xaa	Cys	Cys	Xaa	Xaa	Cys	Cys	Asn	Pro	Ala	Cys	Xaa
1				5					10					15	
Gly	Cys	Xaa	Xaa	Xaa											
				20											

<210> 121

<211> 5

<212> PRT

<213> Artificial Sequence

<220>

<223> Synthetically generated peptide

<400> 121

Asn	Ser	Ser	Asn	Tyr
1			5	

<210> 122

<211> 30

<212> PRT

<213> *Yersinia enterocolitica*

<400> 122

Gln	Ala	Cys	Asp	Pro	Pro	Leu	Pro	Pro	Ala	Glu	Val	Ser	Ser	Asp	Trp
1				5					10					15	
Asp	Cys	Cys	Asp	Val	Cys	Cys	Asn	Pro	Ala	Cys	Ala	Gly	Cys		
			20					25					30		

<210> 123

<211> 6

<212> PRT

<213> Artificial Sequence

<220>

<223> Synthetically generated peptide

<400> 123

Lys	Lys	Lys	Lys	Lys	Lys
1				5	

<210> 124

<211> 7

<212> PRT

<213> Artificial Sequence

<220>

<223> Synthetically generated peptide

<400> 124

Asp	Lys	Lys	Lys	Lys	Lys	Lys
1				5		

<210> 125

<211> 13

<212> PRT

<213> Artificial Sequence

<220>

<223> Synthetically generated peptide

<400> 125

Cys	Cys	Glu	Tyr	Cys	Cys	Asn	Pro	Ala	Cys	Thr	Gly	Cys
1				5					10			

<210> 126

<211> 13

<212> PRT

<213> Artificial Sequence

<220>

<223> Synthetically generated peptide

<400> 126

Cys	Cys	Glu	Ala	Cys	Cys	Asn	Pro	Ala	Cys	Thr	Gly	Cys
1				5					10			

<210> 127
 <211> 13
 <212> PRT
 <213> Artificial Sequence

<220>
 <223> Synthetically generated peptide

<400> 127
 Cys Cys Glu Arg Cys Cys Asn Pro Ala Cys Thr Gly Cys
 1 5 10

<210> 128
 <211> 13
 <212> PRT
 <213> Artificial Sequence

<220>
 <223> Synthetically generated peptide

<400> 128
 Cys Cys Glu Asn Cys Cys Asn Pro Ala Cys Thr Gly Cys
 1 5 10

<210> 129
 <211> 13
 <212> PRT
 <213> Artificial Sequence

<220>
 <223> Synthetically generated peptide

<400> 129
 Cys Cys Glu Asp Cys Cys Asn Pro Ala Cys Thr Gly Cys
 1 5 10

<210> 130
 <211> 13
 <212> PRT
 <213> Artificial Sequence

<220>
 <223> Synthetically generated peptide

<400> 130
 Cys Cys Glu Cys Cys Cys Asn Pro Ala Cys Thr Gly Cys
 1 5 10

<210> 131
 <211> 13
 <212> PRT
 <213> Artificial Sequence

<220>
 <223> Synthetically generated peptide

<400> 131

Cys Cys Glu Gln Cys Cys Asn Pro Ala Cys Thr Gly Cys
 1 5 10

<210> 132
 <211> 13
 <212> PRT
 <213> Artificial Sequence

<220>
 <223> Synthetically generated peptide

<400> 132
 Cys Cys Glu Glu Cys Cys Asn Pro Ala Cys Thr Gly Cys
 1 5 10

<210> 133
 <211> 13
 <212> PRT
 <213> Artificial Sequence

<220>
 <223> Synthetically generated peptide

<400> 133
 Cys Cys Glu Gly Cys Cys Asn Pro Ala Cys Thr Gly Cys
 1 5 10

<210> 134
 <211> 13
 <212> PRT
 <213> Artificial Sequence

<220>
 <223> Synthetically generated peptide

<400> 134
 Cys Cys Glu His Cys Cys Asn Pro Ala Cys Thr Gly Cys
 1 5 10

<210> 135
 <211> 13
 <212> PRT
 <213> Artificial Sequence

<220>
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<400> 135
 Cys Cys Glu Ile Cys Cys Asn Pro Ala Cys Thr Gly Cys
 1 5 10

<210> 136
 <211> 13
 <212> PRT
 <213> Artificial Sequence

<220>

<223> Synthetically generated peptide

<400> 136

Cys Cys Glu Lys Cys Cys Asn Pro Ala Cys Thr Gly Cys
1 5 10

<210> 137

<211> 13

<212> PRT

<213> Artificial Sequence

<220>

<223> Synthetically generated peptide

<400> 137

Cys Cys Glu Met Cys Cys Asn Pro Ala Cys Thr Gly Cys
1 5 10

<210> 138

<211> 13

<212> PRT

<213> Artificial Sequence

<220>

<223> Synthetically generated peptide

<400> 138

Cys Cys Glu Phe Cys Cys Asn Pro Ala Cys Thr Gly Cys
1 5 10

<210> 139

<211> 13

<212> PRT

<213> Artificial Sequence

<220>

<223> Synthetically generated peptide

<400> 139

Cys Cys Glu Pro Cys Cys Asn Pro Ala Cys Thr Gly Cys
1 5 10

<210> 140

<211> 13

<212> PRT

<213> Artificial Sequence

<220>

<223> Synthetically generated peptide

<400> 140

Cys Cys Glu Ser Cys Cys Asn Pro Ala Cys Thr Gly Cys
1 5 10

<210> 141

<211> 13

<212> PRT

<213> Artificial Sequence

<220>

<223> Synthetically generated peptide

<400> 141

Cys Cys Glu Thr Cys Cys Asn Pro Ala Cys Thr Gly Cys
1 5 10

<210> 142

<211> 13

<212> PRT

<213> Artificial Sequence

<220>

<223> Synthetically generated peptide

<400> 142

Cys Cys Glu Trp Cys Cys Asn Pro Ala Cys Thr Gly Cys
1 5 10

<210> 143

<211> 13

<212> PRT

<213> Artificial Sequence

<220>

<223> Synthetically generated peptide

<400> 143

Cys Cys Glu Val Cys Cys Asn Pro Ala Cys Thr Gly Cys
1 5 10

<210> 144

<211> 21

<212> PRT

<213> Artificial Sequence

<220>

<223> Synthetically generated peptide

<220>

<221>VARIANT

<222> 1, 2, 3, 4, 5

<223> Xaa is missing

<220>

<221>VARIANT

<222> 8

<223> Xaa = Glu

<220>

<221>VARIANT

<222> 9

<223> Xaa = Leu, Ile, Lys, Arg, Trp, Tyr or Phe

<220>

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<221>VARIANT
<222> 12
<223> Xaa = Asn

<220>
<221>VARIANT
<222> 13
<223> Xaa = Pro

<220>
<221>VARIANT
<222> 14
<223> Xaa = Ala

<220>
<221>VARIANT
<222> 16
<223> Xaa = Thr, Ala, Lys, Arg, Trp

<220>
<221>VARIANT
<222> 17
<223> Xaa = Gly

<220>
<221>VARIANT
<222> 19
<223> Xaa = Tyr or Leu

<220>
<221>VARIANT
<222> 20, 21
<223> Xaa20 = Asp; Xaa21 = Phe; or missing

<400> 144
Xaa Xaa Xaa Xaa Xaa Cys Cys Xaa Xaa Cys Cys Xaa Xaa Xaa Cys Xaa
 1             5             10             15
Xaa Cys Xaa Xaa Xaa

<210> 145
<211> 21
<212> PRT
<213> Artificial Sequence

<220>
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<220>
<221>VARIANT
<222> 1, 2, 3, 4, 5
<223> Xaa1= Asn, Xaa2 = Ser, Xaa3 = Ser, Xaa4 = Asn,
      Xaa5 = Tyr; or missing

<220>
<221>VARIANT
<222> 1, 2, 3, 4
<223> Xaa = missing

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<220>
<221>VARIANT
<222> 5
<223> Xaa = Asn, Trp, Tyr, Asp, Ile, Thr or Phe

<220>
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<222> 8
<223> Xaa = Glu, Asp, Gln, Gly or Pro

<220>
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<222> 9
<223> Xaa = Leu, Ile, Val, Ala, Lys, Arg, Trp, Tyr or
      Phe

<220>
<221>VARIANT
<222> 12
<223> Xaa = Asn, Tyr, Asp or Ala

<220>
<221>VARIANT
<222> 13
<223> Xaa = Pro or Gly

<220>
<221>VARIANT
<222> 14
<223> Xaa = Ala, Leu, Ser, Gly, Val, Glu, Gln, Ile, Leu,
      Lys, Arg, and Asp

<220>
<221>VARIANT
<222> 16
<223> Xaa = Thr, Ala, Asn, Lys, Arg

<220>
<221>VARIANT
<222> 17
<223> Xaa = Gly, Pro or Ala

<220>
<221>VARIANT
<222> 19
<223> Xaa = Trp, Tyr, Phe or Leu

<220>
<221>VARIANT
<222> 19-21
<223> Xaa = Asp, Phe or missing; or Xaa20 =
      Asn, or Glu and Xaa21 is missing; or Xaa19, Xaa20,
      Xaa21 = is missing

<400> 145
Xaa Xaa Xaa Xaa Xaa Cys Cys Xaa Xaa Cys Cys Xaa Xaa Xaa Cys Xaa

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<220>  
<221>VARIANT  
<222> 19
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<223> Xaa = Tyr or Leu

<220>

<221>VARIANT

<222> 20, 21

<223> Xaa20 = Asp, Xaa21 = Phe or missing

<400> 146

Xaa	Xaa	Xaa	Xaa	Xaa	Cys	Cys	Xaa	Xaa	Cys	Cys	Xaa	Xaa	Xaa	Cys	Xaa
1				5				10					15		
Xaa	Cys	Xaa	Xaa	Xaa											
			20												

<210> 147

<211> 21

<212> PRT

<213> Artificial Sequence

<220>

<223> Synthetically generated peptide

<220>

<221>VARIANT

<222> 1, 2, 3, 4, 5

<223> Xaa = Xaa1 = Asn, Xaa2 = Ser, Xaa3 = Ser, Xaa4 =
Asn, Xaa5 = Tyr, or is missing; or Xaa1- Xaa4 is
missing and Xaa5 = Asn, Trp, Tyr, Asp, Ile, Thr

<220>

<221>VARIANT

<222> 8

<223> Xaa = Glu, Asp, Gln, Gly or Pro

<220>

<221>VARIANT

<222> 9

<223> Xaa = Leu, Ile, Val, Ala, Lys, Arg, Trp, Tyr or
Phe

<220>

<221>VARIANT

<222> 12

<223> Xaa = Asn, Tyr, Asp or Ala

<220>

<221>VARIANT

<222> 13

<223> Xaa = Pro or Gly

<220>

<221>VARIANT

<222> 14

<223> Xaa = Ala, Leu, Ser, Gly, Val, Glu, Gln, Ile, Leu,
Lys, Arg or Asp

<220>

<221>VARIANT

<222> 16
 <223> Xaa = Thr, Ala, Asn, Lys, Arg, Trp

<220>
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 <222> 17
 <223> Xaa = Gly, Pro or Ala

<220>
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 <222> 19
 <223> Xaa = Trp, Tyr, Phe or Leu; or Xaa = Lys or Arg

<220>
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 <222> 20
 <223> Xaa = Asp, Phe or missing; or
 Xaa20 = Asn or Glu and Xaa21 is missing

<220>
 <221>VARIANT
 <222> 19, 21
 <223> Xaa is missing

<400> 147
 Xaa Xaa Xaa Xaa Xaa Cys Cys Xaa Xaa Cys Cys Xaa Xaa Xaa Cys Xaa
 1 5 10 15
 Xaa Cys Xaa Xaa Xaa
 20

<210> 148
 <211> 21
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<220>
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 <223> Xaa is missing

<220>
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 <222> 8
 <223> Xaa = Glu

<220>
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 <222> 9
 <223> Xaa = Leu, Ile, Lys, Arg, Trp, Tyr or Phe

<220>
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 <222> 12
 <223> Xaa = Asn

<220>
 <221>VARIANT
 <222> 13
 <223> Xaa = Pro

<220>
 <221>VARIANT
 <222> 14
 <223> Xaa = Ala

<220>
 <221>VARIANT
 <222> 16
 <223> Xaa = Thr, Ala, Lys, Arg, Trp

<220>
 <221>VARIANT
 <222> 17
 <223> Xaa = Gly

<220>
 <221>VARIANT
 <222> 19
 <223> Xaa = Tyr or Leu; or Xaa = Lys or Arg

<220>
 <221>VARIANT
 <222> 20, 21
 <223> Xaa = Asp, Phe or is missing

<400> 148
 Xaa Xaa Xaa Xaa Xaa Cys Cys Xaa Xaa Cys Cys Xaa Xaa Xaa Cys Xaa
 1 5 10 15
 Xaa Cys Xaa Xaa Xaa
 20

<210> 149
 <211> 21
 <212> PRT
 <213> Artificial Sequence

<220>
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<220>
 <221>VARIANT
 <222> 1, 2, 3, 4
 <223> Xaa = is missing

<220>
 <221>VARIANT
 <222> 5
 <223> Xaa = Asn

<220>
 <221>VARIANT

<222> 9

<223> Xaa = Trp, Tyr or Phe;

<220>

<221>VARIANT

<222> 16

<223> Xaa = Thr or Ala

<220>

<221>VARIANT

<222> 19

<223> Xaa = Trp, Tyr, Phe

<220>

<221>VARIANT

<222> 20, 21

<223> Xaa = Asp, Phe

<400> 149

Xaa Xaa Xaa Xaa Xaa Cys Cys Xaa Xaa Cys Cys Asn Pro Ala Cys Xaa

1

5

10

15

Gly Cys Xaa Xaa Xaa

20